VERMONT

Department of Public Safety

Division of Fire Safety
Central Office
1311 U.S. Route 302 - Berlin
Suite 600
Barre, VT 05641-2351
firesafety.vermont.gov

[phone] 802-479-7561 or 800-640-2106
[fax] 802-479-7562

Memorandum

To: Division of Fire Safety Staff
Electricians Licensing Board

From: Bob Patterson, Deputy Director

Date: October 30, 2012

Re: Solar Array Installations

The Division of Fire Safety has been asked to comment on jurisdiction of solar array installations when not located on a public building or located at an owner occupied single family residence. This memorandum pertains to privately owned solar array installations installed in an open field on a contiguous property with a public building and connected to the public building. Privately owned solar arrays are considered under the jurisdiction of the Division and require electrical permits when the installation is connected to a public building on the premise. Such buildings will also require a construction permit.

The 2011 Vermont Electrical Rules adopt the 2011 National Electric Code (NFPA 70) which specifies in Article 690.31(A) that:

> *Where photovoltaic source and output circuits operating at maximum system voltages greater than 30 volts are installed in readily accessible locations, circuit conductors shall be installed in a raceway.*

The NEC Handbook makes the following comment at this code opening:

"Most PV modules do not have provisions for attaching raceways. These circuits may have to be made "not readily accessible" by use of physical barriers such as wire screening"

While this may suggest a solution, it is not always practical to install physical barriers on each individual module because of the number of modules involved.

In these circumstances we essentially have a privately owned electric supply station which our statutes and rules did not specifically contemplate when crafted. However, the Vermont Electrical Safety Rules also adopt the ANSI C2, National Electric Safety Code (2007 edition) which is better suited to these installations in some

instances.

Alternatively, in lieu of protecting each individual module, the Division will also accept protective arrangements complying with the National Electric Safety Code Section 11, 110 (a) which provides that electric supply stations may be guarded by a grounded metal fence with a height that satisfies any one of the following:

> *a. Fence fabric, 2.13 m (7ft) or more in height.*
> *b. A combination of 1.8 m (6') or more of fence fabric and an extension utilizing three (3) or more strands of barbed wire to achieve overall height of the fence not less than 7'.*
> *c. Other types of construction, such as nonmetallic material that present equivalent barriers to climbing or other unauthorized entry.*

In addition, A safety sign shall be displayed at each entrance and on each side of the enclosure indicating "authorized personnel only". Entrances shall be kept locked when unattended.

Public utility installations are exempt under 26 V.S.A. § 882. A solar project which is connected directly to utility poles with no building present is exempt based on a "complex structure" having the same meaning as a "public building" defined in 20 V.S.A. §2900(8). This determination is based on a ruling from the Office of the Attorney General dated May 17, 2001 entitled Electrical Jurisdiction.